

## Climate change and threat of vector-borne diseases in India: Are we prepared?

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### Abstract:

It is unequivocal that climate change is happening and is likely to expand the geographical distribution of several vector-borne diseases, including malaria and dengue etc. to higher altitudes and latitudes. India is endemic for six major vector-borne diseases (VBD) namely malaria, dengue, chikungunya, filariasis, Japanese encephalitis and visceral leishmaniasis. Over the years, there has been reduction in the incidence of almost all the diseases except chikungunya which has re-emerged since 2005. The upcoming issue of climate change has surfaced as a new threat and challenge for ongoing efforts to contain vector-borne diseases. There is greater awareness about the potential impacts of climate change on VBDs in India and research institutions and national authorities have initiated actions to assess the impacts. Studies undertaken in India on malaria in the context of climate change impact reveal that transmission windows in Punjab, Haryana, Jammu and Kashmir and north-eastern states are likely to extend temporally by 2-3 months and in Orissa, andhra Pradesh and Tamil Nadu there may be reduction in transmission windows. Using PRECIS model (driven by HadRM2) at the resolution of 50 x 50 Km for daily temperature and relative humidity for year 2050, it was found that Orissa, West Bengal and southern parts of Assam will still remain malarious and transmission windows will open up in Himachal Pradesh and north-eastern states etc. Impact of climate change on dengue also reveals increase in transmission with 2 C rise in temperature in northern India. Re-emergence of kala-azar in northern parts of India and reappearance of chikungunya mainly in southern states of India has also been discussed. The possible need to address the threat and efforts made in India have also been highlighted. The paper concludes with a positive lead that with better preparedness threat of climate change on vector-borne diseases may be negated.

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### Resource Description

#### Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

#### Exposure :

weather or climate related pathway by which climate change affects health

Unspecified Exposure

# Climate Change and Human Health Literature Portal

## **Geographic Feature:** ☒

resource focuses on specific type of geography

None or Unspecified

## **Geographic Location:** ☒

resource focuses on specific location

Non-United States

**Non-United States:** Asia

**Asian Region/Country:** India

## **Health Impact:** ☒

specification of health effect or disease related to climate change exposure

Infectious Disease

**Infectious Disease:** Vectorborne Disease

**Vectorborne Disease:** Fly-borne Disease, Mosquito-borne Disease

**Fly-borne Disease:** Leishmaniasis

**Mosquito-borne Disease:** Chikungunya, Dengue, Dirofilariasis, Malaria, Viral Encephalitis

## **Mitigation/Adaptation:** ☒

mitigation or adaptation strategy is a focus of resource

Adaptation

## **Resource Type:** ☒

format or standard characteristic of resource

Review

## **Resilience:** ☒

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

## **Timescale:** ☒

time period studied

Time Scale Unspecified

## **Vulnerability/Impact Assessment:** ☒

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content